PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference AMC044BWO	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP 03/09931	International filing date *(day/month/year)* 08.09.2003	Priority date *(day/month/year)* 17.10.2002
International Patent Classification (IPC) or both national classification and IPC B01J8/02		
Applicant AMMONIA CASALE S.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
25.03.2004	16.02.2005
Name and mailing address of the international preliminary examining authority: European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840	Authorized Officer Cubas Alcaraz, J Telephone No. +49 30 25901-324

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/09931

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-8 as originally filed

Claims, Numbers

1-7 as originally filed

Drawings, Sheets

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☐ the claims, Nos.:

   ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	2-7
	No:	Claims	1
Inventive step (IS)	Yes:	Claims	2-7
	No:	Claims	1
Industrial applicability (IA)	Yes:	Claims	1-7
	No:	Claims	

2. Citations and explanations

   see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following document:
D1: FR-A-2029533

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

The document D1 discloses (claims 1-3, example 2, figure 2) a method for carrying out exothermic oxidation reactions. The temperature in the reactor is regulated by controlling the feed of reactants at different points (page 3, lines 8-14 and 34-37) and using external heat exchangers. Thus, it can be assumed that the reactor will operate at isothemal conditions once the equilibrium is reached. The reactor contains one single catalytic bed (see page 2, lines 37-39) because, even considering the figures comprising several catalytic zones, there is only one vessel for the reaction which is said to be filled with catalyst and no reference is found in the document related to the presence of several beds. In any case, the internal structure of the catalytic bed appears to be irrelevant to achieve the control of the temperature. Accordingly, document D1 anticipates the subject-matter of claim 1.

3. The subject-matter of claim 2 differs from the method described in D1, considered to represent the closest prior art, in that a plurality of distribution-suppliers is provided inside the catalytic bed and heat exchange takes place between the bed and the reactants while flowing inside the distribution-suppliers. Accordingly, the subject-matter of claim 2 is new (Article 33(2) PCT.

The method of claim 2 allows a better control of temperature inside the catalytic reactor, since the reactants are supplied along the whole bed and exchange heat with the bed before they are fed at a different point of the catalytic bed. Such an effect was not diclosed or suggested by the prior art. Accordingly, the subject-matter of claim 2 involves an invnetive step (Article 33(3) PCT).

4. Claims 3-7 are dependent on claim 2 and as such also meet the requirements of the PCT with respect to novelty and inventive step.